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extending circumferentially from said sidewall for strengthening said sidewall, said annular flange having a first inner diameter, a second inner diameter, and a first thickness, said first inner diameter less than said second inner diameter.

15. An electric motor in accordance with Claim 11 wherein said annular flange second inner diameter greater than said housing sidewall first diameter.

PLEASE ADD THE FOLLOWING NEW CLAIMS

17. A rotor cup assembly in accordance with Claim 11 wherein said annular flange comprising an edge, said annular flange outwardly flared from said sidewall by an angle (Φ).

18. A rotor cup assembly in accordance with Claim 11 wherein said annular flange provides a smooth tapered surface for pressing an item into said rotor cup.

Remarks

The Office Action mailed July 25, 2002 has been carefully reviewed and the foregoing amendment has been made in consequence thereof. A submission of marked up paragraphs and Claims is submitted herewith.

Claims 5-18 are pending in this application. Claims 5-16 stand rejected. Claims 1-4 have been cancelled. Claim 17 and 18 are newly added. No additional fee is due for newly added Claims 17 and 18.

The rejection of Claims 8 and 14 under 35 U.S.C. § 112 is respectfully traversed. Applicants respectfully submit that one of ordinary skill in the art, after reading the Claims in light of the Figures and the specification, would understand how the annular flange could be machined to remove material to facilitate achieving a desired level of rotor balance. More specifically, Applicants respectfully submit that an artisan of ordinary skill in the art would understand how to impact the rotor balance by removing material from the annular flange. Accordingly, for at least the reasons set forth above, Applicants respectfully request the rejections of Claims 8 and 14 under Section 112 be withdrawn.

The rejection of Claims 5-10 under 35 U.S.C. § 103 as being unpatentable over Hollenbeck et al. (U.S. Patent No. 5,986,379) in view of common knowledge in the art is respectfully traversed.

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Hollenbeck et al. describe an inside out motor having an external rotor (30) with a split C arrangement of ferromagnetic members (44, 46) which function as the poles of the electromagnet in the motor. An annular lip extends circumferentially around a rotor bell (232) and is radially outward from stator laminations positioned within the rotor bell. The annular lip has a uniform inner diameter and is not flared outwardly. Hollenbeck et al. do not describe nor suggest an annular flange extending circumferentially from a sidewall and having a first inner diameter less than a second inner diameter.

Claim 5 recites a "rotor cup assembly for an electric motor, said rotor cup assembly comprising a housing comprising a top, a bottom, a sidewall extending circumferentially from said top and having a first diameter, . . . and an annular flange extending circumferentially from said sidewall . . . said annular flange having a first inner diameter, a second inner diameter, and a first thickness, said first inner diameter less than said second inner diameter."

Hollenbeck et al. describe a motor having an external rotor (30) with a split C arrangement of ferromagnetic members (44, 46) which function as the poles of the electromagnet in the motor. Ferromagnetic members (44, 46) are generally C-shaped and mounted on opposite end caps (40, 42) of the motor. Ferromagnetic members (44, 46) on opposing end caps (40, 42) are angularly offset from each other. Ferromagnetic members (44, 46) on each end cap (40, 42) are also spaced apart from each other, and receive a portion of motor windings (50) within them. The motor is constructed for assembly using few or no separate fastening devices to secure the components together. The rotor shaft (234), having been previously mounted on the rotor bell (232), is inserted through the bearing system (249). A mylar disk (292) is placed around the shaft (234) prior to insertion through the bearing system (249) to provide a low friction surface between the rotor bell (232) and the core cap (265) nearest the bell. An annular lip extends circumferentially around rotor bell (232) and extends perpendicularly from stator laminations positioned within the rotor bell. Notably, Hollenbeck does not describe nor suggest an annular flange extending circumferentially from a sidewall and having a first inner diameter less than a second inner diameter. Rather Hollenbeck et al. describe an annular lip having a uniform inner diameter and a flat lower surface. Furthermore, and in contrast to the present invention, Hollenbeck et al. also illustrate that the annular lip extends from a rotor bell for mating with a second lip that extends from a

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stator assembly to facilitate positioning the stator assembly with respect to the rotor bell. Accordingly, Applicants respectfully submit that Claim 5 is patentable over Hollenbeck et al.

In addition, Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, the mere assertion that it would have been obvious to one of ordinary skill in the art to have modified Hollenbeck et al. to obtain the claimed recitations of the present invention does not support a prima facie obvious rejection. Rather, each allegation of what would have been an obvious matter of design choice must always be supported by citation to some reference work recognized as standard in the pertinent art and the Applicants given the opportunity to challenge the correctness of the assertion or the notoriety or repute of the cited reference. Applicants have not been provided with the citation to any reference supporting the combination made in the rejection. The rejection, therefore, fails to provide the Applicants with a fair opportunity to respond to the rejection, and fails to provide the Applicants with the opportunity to challenge the correctness of the rejection.

Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to have modify Hollenbeck et al. in view of common knowledge in the art because the Examiner has not pointed to any prior art that teaches or suggests to modify Hollenbeck et al. to obtain the claimed invention, other than Applicants' own teaching. Only the conclusory statement that "[t]hat is, in an apparatus claim, if a prior art structure discloses all of the structural elements in the claim, as well as their relative juxtaposition, then it reads on the claim, regardless of whether or not the function for which the prior art structure was intended is the same as that of the claimed invention" suggests modifying Hollenbeck et al. Applicants respectfully submit however, that the prior art teaches away from the present invention, because Hollenbeck et al. do not describe nor suggest an annular flange having a first inner diameter less than a second inner diameter. Accordingly, Applicants respectfully submit that there is no suggestion or motivation to modify Hollenbeck et al. to obtain the claimed invention.

Claims 6-10 depend, directly or indirectly, from independent Claim 5. When the recitations of Claims 6-10 are considered in combination with the recitations of Claim 5, Applicants submit that dependent Claims 6-10 likewise are patentable over Hollenbeck et al.

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In addition, Claim 6 recites that the annular flange is outwardly flared from the sidewall. Hollenbeck et al. do not describe nor suggest an outwardly flared annular flange. Rather, Hollenbeck et al. describe a lip extending perpendicularly to the rotor cup sidewall. Instead of being outwardly flared, the lip has a flat bottom surface.

Claim 9 recites that the annular flange second inner diameter is greater than the sidewall first diameter. Hollenbeck et al. illustrates at Figure 25 that the lip has a substantially uniform inner diameter equal to the sidewall first diameter.

Claim 10 recites that the annular flange provides a smooth tapered surface for pressing an item into the rotor cup. Hollenbeck et al. describe a rotor cup having a lip at the bottom edge thereof. The lip does not include a smooth tapered surface for pressing an item into the rotor cup. Rather, the lip has a flat bottom surface.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 5-10 be withdrawn.

The rejection of Claims 11-16 under 35 U.S.C. § 103(a) as being unpatentable over Hollenbeck et al. (U.S. Patent No. 5,986,379) in view of Yamaguchi (U.S. Patent No. 6,051,900) is respectfully traversed.

Hollenbeck et al. is described above. Yamaguchi teaches the construction of a flat coreless vibration motor having a rotor shaft extending through a bracket for the purpose of supporting and physically connecting an eccentric rotor to the bracket. Yamaguchi does not describe nor suggest a rotor cup assembly for an electric motor that has an annular flange having a first inner diameter less than a second inner diameter.

The rejection of Claims 11-16 under 35 U.S.C. § 103(a) as being unpatentable over Hollenbeck et al. in view of Yamaguchi is respectfully traversed on the grounds that Hollenbeck et al. and Yamaguchi, considered alone or in combination, do not describe nor suggest the claimed invention. Specifically, Claim 11 recites "an electric motor comprising a stator . . . a rotor . . . a rotor shaft . . . and a rotor cup . . . said rotor cup comprising: a housing comprising a top, a bottom, a sidewall, and an annular flange, said sidewall extending circumferentially from said top and having a first diameter, said annular flange extending circumferentially from said sidewall . . . said annular flange having a first inner diameter, a

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second inner diameter, and a first thickness, said first inner diameter less than said second inner diameter.

Neither Hollenbeck et al. nor Yamaguchi, considered alone or in combination, describe or suggest an electric motor including a stator, a rotor positioned at least partially around the stator, a rotor shaft positioned at least partially within the rotor, and a rotor cup, wherein the rotor shaft extends through the rotor cup, and wherein the rotor cup includes a housing including a top, a bottom, a sidewall, and an annular flange extending circumferentially from the sidewall and having a first inner diameter less than a second inner diameter.

Specifically, neither Hollenbeck et al. nor Yamaguchi, considered alone or in combination, describe or suggest a rotor cup comprising a sidewall having an annular flange that has a first inner diameter less than a second inner diameter. Furthermore, neither Hollenbeck et al. nor Yamaguchi, considered alone or in combination, describe or suggest an annular flange that extends circumferentially from a rotor cup sidewall for strengthening the sidewall. Rather, in contrast to the present invention, Hollenbeck et al. describe a rotor shaft that is seated in a mylar disk that is coupled against the rotor cup assembly top, and Yamaguchi describes a flat vibrator motor that includes a shaft fixed to the center of a bracket that forms a part of the housing. Furthermore, and in contrast to the present invention, Hollenbeck et al. illustrate a lip extending from a rotor bell for mating with a second lip that extends from a stator assembly to facilitate positioning the stator assembly with respect to the rotor bell. Hollenbeck et al. neither describe nor suggest that the annular lip has a first inner diameter less than a second inner diameter. In addition, Yamaguchi describes a housing that does not include an annular flange. Accordingly, Applicants respectfully submit that Claim 11 is patentable over Hollenbeck et al. in view of Yamaguchi.

Further, Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Hollenbeck et al. using the teachings of Yamaguchi. More specifically, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Hollenbeck et al. nor Yamaguchi describe or suggest the claimed

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combination. Rather, the present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Hollenbeck et al. is cited for teaching an electric motor that includes a rotor cup wherein the rotor cup has a housing that includes a sidewall and an annular flange that extends circumferentially from the sidewall, but Hollenbeck et al. do not describe nor suggest a rotor cup assembly for an electric motor that has an annular flange extending circumferentially from a sidewall and having a first inner diameter less than a second inner diameter. Yamaguchi is cited for teaching the construction of a flat coreless vibration motor having a rotor shaft that extends through a bracket for the purpose of supporting and physically connecting an eccentric rotor to the bracket. Yamaguchi does not describe nor suggest a rotor cup assembly for an electric motor that has an annular flange extending circumferentially from a sidewall and having a first inner diameter less than a second inner diameter. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 11-16 be withdrawn.

Claims 12-16 depend, directly or indirectly, from independent Claim 11. When the recitations of Claims 12-16 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 12-16 likewise are patentable over Hollenbeck et al. in view of Yamaguchi.

In addition, Claim 15 recites that the annular flange second inner diameter is less than the housing sidewall first diameter. Hollenbeck et al. in view of Yamaguchi do not describe nor suggest an annular flange on a rotor cup having a second inner diameter less than the housing sidewall first diameter.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 11-16 be withdrawn.

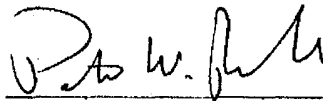
Newly added Claims 17 and 18 depend from independent Claim 15. When the recitations of these claims are considered in combination with the recitations of Claim 15, Applicants submit that Claims 17 and 18 likewise are patentable over the cited art. In

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addition, Claim 17 recites that the annular flange is outwardly flared. Neither Hollenbeck nor Yamaguchi describe nor suggest a rotor cup having an outwardly flared annular flange. Claim 18 recites that the annular flange provides a smooth tapered surface. Neither Hollenbeck et al. nor Yamaguchi describe nor suggest an annular flange having a smooth tapered surface. For the reasons set forth above, Applicants submit that Claim 17 and 18 are patentable over the cited art of record.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Dennis P. Bobay, et al.

Serial No.: 09/681,545

Filed: April 26, 2001

For: EXTERNAL ROTOR CUP WITH
ANNULAR FLANGE
EXTENDING THEREFROM

Art Unit: 2834

Examiner: Cuevas, Pedro J.

SUBMISSION OF MARKED UP PARAGRAPHS AND CLAIMS

Hon. Commissioner for Patents
Box: RCE
Washington, D.C. 20231

The following marked up Claims and Paragraphs are in accordance with 37 C.F.R. 1.121(c)(1), wherein additions are underlined and deletions are [bracketed].

IN THE SPECIFICATION

Please replace paragraph [0015] with the following replacement paragraph.

Figure 2 is a perspective view of a rotor cup 22 including an annular flange 24. In one embodiment, flange 24 is unitary with rotor cup 22. Rotor cup 22 further includes a circumferential sidewall 26 having a first diameter 28, a top surface 30, and an open bottom 32. Sidewall 26 has a height 34 measured between top surface 30 and a top edge 36 of annular flange 24. Annular flange 24 is fabricated from the same material as rotor cup 22. In one embodiment, annular flange 24 is fabricated from stamped steel. Annular flange 24 is substantially circular in shape and has an inside diameter [28] 38 and an outside diameter 40. Inside diameter 38 is smaller than outside diameter 40. Annular flange 24 has a height 42 measured between a bottom edge 44 and top edge 36. In addition, annular flange 24 is outwardly flared from sidewall 26 by an angle Φ measured between sidewall 26 and bottom edge 44. Angle Φ permits annular flange 24 to have an outwardly flared curved edge 46 which allows rotor cup 22 to lay flat on a surface (not shown in Figure 2).

Please replace paragraph [0018] with the following replacement paragraph.

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Figure 4 is a side view of inside-out motor 50 shown in Figure 3 positioned to be attached to a load 60. In one embodiment, load 60 is a fan. Inside-out motor annular flange 24 rests on a surface 62 of a tooling apparatus 64 while supporting rotor cup 22. Load 60 is pressed onto rotor cup 22 in a vertical direction 66. Annular flange 24 provides a smooth surface when load 60 is pressed onto rotor cup 22. Annular flange 24 has an increased surface area because of outwardly flared curved edge [37] 46 (shown in Figure 2).

IN THE CLAIMS

Please cancel claims 1-4.

5. (twice amended) A rotor cup assembly for an electric motor, said rotor cup assembly comprising a housing comprising a top, a bottom, a sidewall extending circumferentially from said top and having a first diameter, said sidewall and said top defining a cavity, and an annular flange extending circumferentially from said sidewall for strengthening said sidewall, said [sidewall] annular flange having a first inner diameter, a second inner diameter, and a first thickness, said first inner diameter less than said second inner diameter.

6. (twice amended) A rotor cup assembly in accordance with Claim 5 wherein said annular flange [configured to have] comprising an edge, said [edge] annular flange outwardly flared from said sidewall by an angle (Φ).

9. (once amended) A rotor cup assembly in accordance with Claim 5 wherein said annular flange second inner diameter greater than said housing sidewall first diameter.

10. (once amended) A rotor cup assembly in accordance with Claim 5 wherein said annular flange provides a smooth tapered surface for pressing an item into said rotor cup.

11. (twice amended) An electric motor comprising a stator including a stator core having a winding thereon, a rotor positioned at least partially around said stator, a rotor shaft positioned at least partially within said rotor, and a rotor cup, said rotor shaft extending through said rotor cup, said rotor cup comprising:

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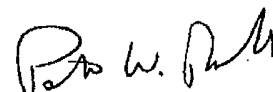
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a housing comprising a top, a bottom, a sidewall, and an annular flange, said sidewall extending circumferentially from said top and having a first diameter, said annular flange extending circumferentially from said sidewall for strengthening said sidewall, said [sidewall] annular flange having a first inner diameter, a second inner diameter, and a first thickness, said first inner diameter less than said second inner diameter.

15. An electric motor in accordance with Claim 11 wherein said annular flange second inner diameter greater than said housing sidewall first diameter.

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